

REMARKS

The prior art rejections of the claims are respectfully traversed. It is respectfully requested that the additional information and arguments contained herein be considered, and the application reconsidered with favorable action ensuing.

The present invention is directed at providing an impactable industrial sliding door that can withstand an impact with a forklift truck, from either direction. While ideally a forklift does not hit a sliding door when it is opening or closing, occasionally it does happen. Since the door way is two way, the impact can occur from either direction. Both the forklift and the door are relatively large objects, with significant inertia, and major damage can result when a collision occurs, usually to the door. More padding has been the prior art's answer in many cases for impact resistance, but that has a separate set of problems, including poor wear and cleanability characteristics, ineffectiveness, moisture absorption and mold growth.

The '942 EP patent reference cited is for a egress door. That's what it says in the translation of the abstract attached to the office action. Egress doors are to permit humans to be able to evacuate a space quickly in case of an emergency, such as a fire. There are building codes that require egress doors to swing in only one direction - outwardly - that recognize this purpose and result in an optimum design to achieve it. An example of such a code is attached as Section 10.104.1 paragraph 3.


There is no suggestion in the cited reference or any other prior art of record to take a one-way swinging human egress door that is incorporated in a sliding door, make it swing two way and use it to make the sliding door impact resistant to a forklift truck. Such a disclosure or

suggestion is simply absent, and it is the law that such a disclosure or suggestion must be present to support an obviousness rejection.

Accordingly, allowance of claims 1-19 as amended is respectfully requested. Please charge any fees that may be due to Deposit Account No. 17-0055.

Respectfully submitted,
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UNIFORM BUILDING CODE STANDARD 10-1 POWER-OPERATED EGRESS DOORS

Test Standard of the International Conference of Building Officials
See Sections 1001.2 and 1003.3.1.2, *Uniform Building Code*

SECTION 10.101 — SCOPE

10.101.1 General. These requirements and methods of test apply to power-operated swinging doors and combination sliding and swinging doors intended for installation in locations where conforming exits are required by Chapter 10.

10.101.2 Operators and Activators. Power-operated doors may be provided with air, hydraulic or electric operators actuated from a floor, activating carpet, photoelectric device or other approved signaling device.

10.101.3 Fire Door Assemblies. Power-operated doors intended for installation in openings where fire door assemblies are required shall, in addition to the requirements of this standard, be tested in accordance with Fire Tests of Door Assemblies, UBC Standard 7-2.

SECTION 10.102 — GENERAL

10.102.1 Panic Hardware. Power-operated doors intended for installation in openings where panic hardware is required shall be tested with panic hardware on the doors.

10.102.2 Opening Degree. When manually operated in the direction of egress, leaves of swinging doors or swing-out sections of sliding doors shall swing open to not less than 90 degrees from the closed position.

10.102.3 Locking Mechanisms. Locking mechanisms on doors intended for locations which do not require panic hardware shall be of a type readily identified as locked, and the doors shall be posted with durable, permanent signs reading **THESE DOORS MUST REMAIN UNLOCKED DURING BUSINESS HOURS**. Signs shall be 1-inch-high (25.4 mm) block letters on a contrasting background. Signs shall be located on the header framing.

10.102.4 Swinging and Sliding Doors. Each swing-out leaf of swinging or sliding doors with swinging sections shall be provided with durable signs in not less than 1-inch (25.4 mm) block letters on a contrasting background reading, **IN EMERGENCY PUSH TO OPEN**, or other approved wording. The sign shall be located at the closing edge of the door not less than 36 inches (914 mm) nor more than 60 inches (1524 mm) above the floor. The sign shall read horizontally and may be in two lines.

10.102.5 Electrical Wiring and Devices. Electrical wiring, electrical devices and controls shall be of a type tested and approved by the building official.

10.102.6 Testing. Doors with power operators shall be examined and tested by an approved testing agency.

10.102.7 Test Report. The test report shall contain engineering data and drawings, size and weight of door tested, wiring diagrams of electrical control systems, schematic drawings of mechanical controls and operating manuals. The report shall describe the mechanical operation of the power operator in sequence as the door opens and closes under normal and emergency conditions. The report shall set forth the tests performed in accordance with the provisions of this standard and the results thereof. Additionally, the report shall contain an analysis comparing each feature of

the design against the performance test procedures contained herein.

10.102.8 Simulated Installation and Test Equipment. Doors with power operators shall be installed in a simulated wall and door framing assembly in accordance with the manufacturer's instructions. The test specimen shall not be less than 3 feet wide (914 mm) by 7 feet high (2134 mm). A motor-driven or variable mechanism shall be used to actuate the activating carpet. The rate of operation or number of cycles shall be three to five per minute. On sliding doors with a swing-out section, additional operating endurance tests shall be conducted. A motor-driven mechanism or other approved means shall be used to push the swinging door section open and pull the swinging section closed at a rate of three to five cycles per minute, so that the latching mechanism and disconnect switches operate as in service. During the test the door specimen shall have only the lubrication which is provided by the manufacturer at the factory, or as may be recommended in the manufacturer's installation instructions.

10.102.9 Endurance Tests. The power operator shall function as intended to open and close the door for 100,000 cycles of operation without failure or excessive wear of parts. The release mechanisms and disconnect switches of the swinging section in sliding doors shall function as intended for 250 cycles of operation without failure or excessive wear of parts. The opening and closing forces, and the speed of opening and closing, shall be recorded at the start of the endurance tests and shall again be recorded at the end of the endurance tests. Opening and closing forces at the beginning and at the end of the endurance test shall not exceed the maximum forces prescribed in these test procedures.

SECTION 10.103 — SWINGING DOORS

10.103.1 Opening Size. Each door opening, when the door is in the 90-degree open position, shall provide a clear opening width of not less than 32 inches (813 mm), with no single leaf less than 24 inches (610 mm) in width.

10.103.2 Doors in Pairs. Doors in pairs shall be equipped with a separate operator for each leaf unless tests with a tandem operator with one leaf jammed in a closed and in a partially open position indicates that the second leaf continues to operate or is free to swing into the open position without exceeding the maximum permitted manual opening pressures. On doors with mechanical controls, one mechanism shall be subjected to fault conditions, during the fault condition, the second leaf shall be operable manually without exceeding the maximum permitted opening pressure.

10.103.3 Closing Mechanism. Normal closing of doors shall be by spring action, pressure-operated mechanism or electrically driven mechanism. The closing force measured at the closing stile shall not exceed 40 pounds (178 N) at any point in the closing arc. The time of final 10 degrees of closing shall not be less than one and one-half seconds.

10.103.4 Operation. Each possible fault condition that affects the power supply shall be introduced into the door and power operator assembly. Under each fault condition, single doors and each leaf of doors in pairs shall open to the 90-degree position with an applied pressure at the normal location of the push plate not exceeding 40 pounds (178 N).

10.103.5 In-swinging Doors. Power-operated in-swinging doors are not recognized for determining exit width opening required to swing in the direction of egress.

10.103.6 Activating Carpets and Safety Mats. Activating carpets and safety mats shall comply with the following provisions:

1. When carpets are used as the activating device, they shall have a width not less than 10 inches (254 mm) less than the clear width of the door opening with the center line of the carpet in the center line of the door opening. The width shall be measured between the exposed edges of the carpet tread surface excluding molded edge bevels or edge trim.

2. The length of activating carpets shall not be less than 42 inches (1067 mm). The length of activating carpets for doors exceeding 42 inches (1067 mm) in width shall not be less than 56 inches (1422 mm). The length shall be measured from the center line of the door pivot to the exposed edge of the carpet tread surface excluding molded edge bevels or edge trim.

3. Doors serving one-way traffic only shall be provided with a safety mat having a length not less than the width of the widest leaf. A safety mat is one that will prevent the door from opening if there is pressure on the safety mat before pressure is applied to the activating mat, and one that will prevent the door from closing following normal door actuation until pressure on the safety mat is removed.

4. Doors serving both egress and ingress shall have a series of joined carpets on the swing side of the door arranged as follows:

- 4.1 One safety carpet or mat nearest to the door at least as long as the width of the door leaf;

- 4.2 One or more activating carpets to provide a total carpet length on the swing side of not less than two and one-half times the width of the widest door leaf.

SECTION 10.104 — SLIDING DOORS

10.104.1 General. Sliding doors shall comply with the following provisions:

1. Sliding leaves of sliding doors shall be provided with swinging sections arranged to swing in the direction of egress when pressure is applied at the location of normal push plates or on the crossbar of panic hardware on doors where panic hardware is required.

2. Operation of the swinging section shall disconnect the sliding door power operator.

3. Permanent stops shall be provided to prevent double swing.

4. Location of the breakaway tension adjustment, opening and closing speed adjustment, opening and closing snub speed adjustments, opening and closing power pressure adjustments, and similar controls shall be concealed and not readily accessible where they may be subject to tampering.

5. Doors shall be suspended from an overhead track. Operators and control levers or mechanisms shall be guarded.

10.104.2 Closing Mechanism. The closing force of sliding doors at 24 inches (610 mm) of opening shall not exceed 30 pounds (133 N) with a closing speed not in excess of 1.5 feet (457 mm) per second.

10.104.3 Opening Width. The minimum clear width of the door opening with the swinging section or sections in the 90-degree open position shall not be less than 32 inches (813 mm) with no single leaf less than 24 inches (610 mm) in width.

10.104.4 Opening Forces. The swinging section in sliding doors shall swing open into the full open position when an opening force not exceeding 40 pounds (178 N) is applied at the normal push plate location or on the crossbar of panic hardware.

10.104.5 Fault Condition Introduced. Under each possible fault condition that affects the power supply and with the sliding leaf or leaves retracted one half the leaf width into its or their pocket, each swinging section shall open to the 90-degree position with an applied pressure at the normal location of the push plate not exceeding 40 pounds (178 N).

10.104.6 Sliding Doors without Swing-out Section. Power-operated sliding doors which are not provided with a swing-out section may be evaluated for conformance to the mechanical requirements and endurance tests provided in this standard. Power-operated sliding doors which are not provided with a swing-out section shall not be listed for use in locations where required exits are specified by this code.

10.104.7 Activating Carpets and Safety Mats. Activating carpets and safety mats shall conform to Section 10.103.5.

SECTION 10.105 — MARKING

The name of the manufacturer, or trademark by which the manufacturer can be readily identified, shall be legibly marked on the operating equipment where it can be seen after installation. The type, model number or letter designation identifying the product as a listed device shall be provided on a label attached in a location as indicated in its listing.